LAND AND LAKES COMPANY

WILLOW RANCH LANDFILL - IEPA SITE #1978030003

SUPPLEMENT TO

USEPA SITE INSPECTION REPORT

DATED OCTOBER 31, 1991

Prepared by

Land and Lakes Company
in conjunction with
Mittelhauser Corporation
EnviroResources, Inc.
Environment, Inc.

EPA Region 5 Records Ctr.

358325

12/91

Land and Lakes Co.

123 N. NORTHWEST HIGHWAY
(708) 825-5000 / FAX (708) 825-0887

P.O. BOX 778
PARK RIDGE, ILLINOIS 60068-0778

December 27, 1991

Mr. Jerome D. Oskvarek
FIT Office Manager
Ecology and Environment, Inc.
111 West Jackson Boulevard
Chicago, Illinois 60604

Re: Land and Lakes Company Landfill, Lemont, Illinois
U.S. EPA ID: ILD981190291
TDD: F05-9006-002
PAN: FIL04525A
Report Dated October 31, 1991
Contract No.: 68-01-7347

Dear Mr. Oskvarek:

Enclosed herewith is a copy of a report entitled "Supplement to USEPA Site Inspection Report" dated October 31, 1991 which was filed with the USEPA on December 27, 1991. Please review our supplement to your report and provide us with a response to the inaccuracies we noted in the report. We have been in contact with the USEPA and have requested a meeting with them. Provided we are granted this opportunity to respond to the errors in your report, we would like you also to attend the meeting. Our goal is to have the report amended to correct the errors set out in our supplement. The fact that your contract with the USEPA may have expired is of no consequence to us in view of the potential damage caused by your errors. We are a small, privately held company and, as I say in my letter to the USEPA, supplementing your report is not an adequate remedy for the damages this report can cause us.

Printed on recycled paper

If, after you review, you conclude there is no need to change the report or you are unwilling to change the report despite its errors, we will pursue all of our legal remedies, including litigation. We are hopeful, however, that reasonable actions will be taken by all parties to effect a mutually acceptable result.

Very truly yours,

LAND AND LAKES COMPANY

Thomas K. Kehoe
General Counsel

TKK/kb

Enclosures

cc: Mr. Richard W. Walker, FIT Report Preparer, Ecology and Environment, Inc. (w/o enclosures)
Ms. Deborah Epstein, FIT Unit Manager, Ecology and Environment, Inc. (w/o enclosures)
Mr. David Curnock, Mittelhauser Corporation
Mr. Mahendra Sandesara, Environment, Inc.
Ms. Eileen Sheliga, EnviroResources, Inc.
Mr. William D. Messenger, USEPA

LAND AND LAKES COMPANY
WILLOW RANCH LANDFILL
SUPPLEMENT TO
USEPA SITE INSPECTION REPORT

EXECUTIVE SUMMARY

USEPA sent Land and Lakes Company a "DRAFT" Site Inspection Report dated October 31, 1991 prepared by Ecology and Environment. USEPA later notified Land and Lakes Company that the "DRAFT" report is now "FINAL". This "FINAL" report is incomplete and filled with errors, inconsistencies, misleading statements, omissions and false conclusions which must be addressed, amended, supplemented and corrected so that an accurate representation of the Willow Ranch landfill can be available to the USEPA and all other interested parties.

The major points addressed in this report will show that:

- The groundwater beneath and around the facility is not contaminated.
- The landfill liner system has performed as designed and there has been no groundwater contamination.
- The geologic features directly adjacent to the facility will prevent the occurrence of any potential groundwater contamination.
- The majority of the analytical data cited in the report is either estimated or outside quality control limits. None of the data is supported by laboratory data sheets or quality control data.
- The compounds identified by Ecology and Environment are not related to landfilled waste.
- The compounds identified by Ecology and Environment are those most likely associated with roads constructed of bituminous asphalt, vehicles and machinery traffic. These

compounds pose a contamination potential for the Des Plaines River and groundwater no greater than for any other roadway or drainage path in the area.

- The underdrain system includes a solid pipe beneath the landfill which directs upgradient water under the facility. It is physically impossible for leachate to enter the pipe.

- The site has never accepted hazardous waste, special waste or liquid waste. Only general refuse is accepted for disposal.

- The site has been operated under the approval and close inspection of the IEPA, the Will County Health Department and the Will County Land Use Department.

- The report is a hurried production effort issued on the date the contract between Ecology and Environment and the USEPA was terminated.

INTRODUCTION

The report was released to Land and Lakes Company as a "Draft Screening Site Inspection Report (SIR)" dated October 31, 1991, by the USEPA Hazard Site Evaluation Division. The inspection and report were performed and prepared by Ecology & Environment, which is a Field Investigation Team (FIT) subcontractor to USEPA (Contract No. 68-01-7347).

It is not the usual policy of USEPA to release SIRs in draft form. Also, it is not typical USEPA policy to release SIRs until such time as they have been determined as nonpredecisional information. Predecisional in this instance refers to the time prior to developing a Hazard Ranking System (HRS) score or deciding that the site should be considered for no further action by USEPA. In any event, the "draft" nature of the report is atypical.

The basic quality of the SIR as received by Land and Lakes Company for this site was even less than consistent with what is normally expected as a "draft" document. The report was not even collated properly. The sections were not in order and the pages within the sections were out of order as well. The document had the appearance of a hurried production effort.

This hurried production effort was also apparent in the quality of the technical matter of the report. Many instances of inaccurate accounting of events or misleading statements have been identified. These instances will be presented in later sections of this report.

The contract, under which this site inspection was performed and the report prepared, was terminated on October 31, 1991 - the same date which this report was issued! This fact may give rise to some of the basis of the "draft" nature of the SIR as well as its "hurried production" appearance and content.

The purpose and rationale of the soil sampling portion of the inspection and the final presentation of the data are of concern to Land and Lakes Company. According to the draft SIR, the soil samples were collected to determine whether USEPA Target Compound List (TCL) or Target Analyte List (TAL) constituents were present in onsite drainage ditches (Samples S1, S2, and S3). Additional samples (S4 through S8) were collected to characterize the wastes disposed in the

landfill and determine if TCL or TAL constituents had migrated from the fill areas. Sample S4 was collected to determine whether TCL or TAL constituents had been discharged from the groundwater collection system. Samples S9 and S10 were collected as potential background samples to determine the representative chemical content of the soil in the area of the site. The locations of the samples collected and their intended use are not consistent. For each group of samples identified above, this report will demonstrate the inconsistency of purpose to location.

We believe the reporting of the analytical laboratory data in general is misleading. Since this is a technical document that will be used to assess this site for future actions within the CERCLA program, there should be no subjective reporting of analytical data. Although the data appears to be consistent in its presentation, these data may be subject to misinterpretation by an individual who does not possess the necessary data evaluation skills. Data that is either estimated or outside quality control limits should not be used for assessment purposes of this nature. [redacted] / inaccurate [redacted] At a minimum, the detection limits for the individual compounds should be provided to perform better analyses of this highly qualified data.

The groundwater beneath the facility is not contaminated. The reworked clay liner with a minimum thickness of 5 feet and groundwater underdrain system have performed as designed and constructed to provide for the absence of groundwater impacts.

The existence of the identified compounds have not been shown to be related to the landfilled wastes by Ecology & Environment, nor are they in fact related to the landfilled wastes. These identified compounds are most likely associated with roads constructed of bituminous asphalt, vehicles and machinery traffic. These identified compounds pose a contamination potential for the Des Plaines River and groundwater no greater than for any other roadway or drainage path in the area.

The following specific comments and data evaluation will help correct the errors and supplement the deficiencies in the report prepared by Ecology & Environment.

SUPPLEMENTS, AMENDMENTS AND CORRECTIONS

Page 1-1

"The site was discovered in 1982 when a local resident allegedly collected a sample of shredded automobile interior materials from the LLL site and analysis of the sample revealed the presence of polychlorinated biphenyls (PCBs) (Smith 1983)."

EPA term

The site was not [redacted]n 1982. A more appropriate selection of words may have been made by E & E to communicate that the USEPA was made aware that a local resident allegedly collected a sample of shredded automobile interior materials.

Page 2-1 Section 2.2

"The landfill has a liner composed of 5 feet of clay."

The Land and Lakes Company Willow Ranch landfill facility in Romeoville, Illinois is a fully permitted disposal facility authorized by the Illinois Environmental Protection Agency (IEPA). In being such a facility, it has been required that certain environmental protective measures be undertaken and assured through construction and operation of the facility. The construction of the compacted clay liner and its engineering assurance are a portion of these environmental protective measures.

The landfill has a bottom liner that consists of a minimum of five feet of recompacted clay soils with a permeability of less than $1x10^{-7}$ cm/sec. The landfill has a sidewall liner that consists of a minimum of six feet of recompacted clay soils with a permeability of less than $1x10^{-7}$ cm/sec. The landfill was permitted to operate under a cell-by-cell basis; i.e., each individual cell was inspected and certified by an independent registered professional of Illinois and then reinspected by the IEPA prior to the IEPA issuing an operating permit for each specific cell. The landfill was divided into 14 operating cells,

each requiring separate soil boring data and quality control information showing that IEPA permit specifications were exceeded. Approximately 40 soil borings, 60 density tests, 40 permeability tests, 10 proctors, and on-site inspection during liner construction were executed as a part of the liner construction quality control program. All soil data and certifications are on file with the IEPA and it is evident from the data that the bottom liner is constructed of an average of eight feet of recompacted clay soils with an average permeability of $1x10^{-8}$ cm/sec. In all instances the quality control specifications, as defined by the IEPA, were exceeded. Information such as this was available for review by the FIT inspection team. It was discussed during the interview session, but was not requested by the FIT inspectors in hard copy. Should these materials have been requested, they would have been produced during the inspection.

Page 2-2 Figure 2-1

The site is incorrectly depicted as approximately 90+ acres and should be more correctly shown as the IEPA permitted 33-acre facility.

Page 2-3 Section 2.3

"On April 15, 1986, Land and Lakes Company was permitted by the IEPA to install . . . a leachate collection system." (Eastep, 1986)

Land and Lakes Company never applied to install a leachate collection system, was never required to install a leachate collection system, and was not permitted to install a leachate collection system. Land and Lakes Company is required to monitor the leachate level in one IEPA-permitted leachate level monitoring manhole. The leachate levels have been reported to the IEPA on an semi-annual basis and the leachate levels have been very low (6" or less).

Page 2-4 Section 2.3

"Land and Lakes Company was permitted by the IEPA to install . . . flares for the purpose of containing methane."

Passive gas flares were installed, as approved by the IEPA, to control methane gas escaping from the landfill by flaring it to the atmosphere. Methane is not "contained," but rather it is "controlled."

Page 2-4 Section 2.3

"Throughout the 1980's, the Land and Lakes Company site had been cited for lack of daily cover."

The above statement is misleading and implies that Land and Lakes Company was cited continuously for lack of daily cover. In fact, the IEPA, the Will County Health Department, and the Will County Solid Waste Department have cited the landfill for an "apparent" violation of lack of daily cover on 13 times in 10 years; that is a little over one violation per year! Please note that over 200 inspections were performed in the 1980's and the facility was operating in excess of 2,500 days in the 1980's.

Page 2-4 Section 2.3

"The integrity of the liner and the effectiveness of the leachate collection system is not known."

This information was never requested by Ecology & Environment, Inc. and if it was requested, it would have been provided. Please refer to previous comments.

Page 2-4 Section 2.3

"The liner is composed of only 5 feet of clay. No further information about the construction of the liner was made available to FIT by the site representative."

This particular statement is both misleading and inaccurate. The subjective nature of the word "only" to describe the thickness of the compacted clay liner is not appropriate for a technical document such as an SIR. Also, there was additional information, both provided and available, concerning the design, construction, and assurance of the liner which was made known during the inspection procedures.

Page 3-2 Section 3.3

"The site is bordered on the south by a gravel pit, on the west by an intermittent stream, on the north by a composting area, and on the east by farmland. The site is fenced only along its southern and eastern borders. Most of the fence is plastic and is less than three feet high. A gravel access road . . ."

The site is actually bordered on the south by a 100 acre, 110-foot deep limestone quarry, on the west by a drainage ditch, and on the east by lowland covered with trees, bushes and native grasses that has never been farmed. The difference in groundwater flow and hydrogeology from a gravel pit to a limestone quarry is substantial and this inaccurate initial observation has lead to faulty conclusions in subsequent areas of the report.

Access to the site is controlled as follows:

1) North and Northwest Boundary

- 2000 feet of 4' high barbed wire fencing.

2) East

- 1900 feet of 4' high barbed wire fencing.
- 700 feet of 6' high woven wire fabric fencing.

3) South

- 1200 feet of 6' high woven wire fencing interrupted only at the monitoring wells, where small sections of 4' high removable plastic fencing have been installed.

4) West

- 200 feet of 6' high chain link fencing and gates.

- 3000 feet of inaccessible drainage swails, berms and stands of trees.

Please note that the IEPA and Will County have always found restriction to site access more than acceptable.

The site access road is paved with over 6 inches of bituminous asphalt and is not constructed of gravel.

Page 3--2 Section 3.3

"The LLL site is predominantly vegetated, but there are many barren patches on the site."

Barren patches are areas that have not been completed and/or certified as closed. Once the cover system has been completed, tested, certified and the vegetation is established, these barren areas will no longer exist.

Page 3-2 Section 3.3

"A pile of turnaround material consisting mostly of wood debris is located adjacent to the access road..."

The IEPA has issued a supplemental permit that allows the stockpiling of this material.

Page 3-3 Section 3.3

The Figure 3-1 depicts site features but is somewhat inaccurate in that the property boundary of land owned by JMC Operations, Inc. is correct but the site boundary is in error. The site boundary should be the 33-acre solid waste disposal facility, as permitted by the IEPA, and not the 90+ acre site shown in Figure 3-1.

Page 3-4 Section 3.4

"Surface soil sample S1, S2, and S3 were collected to determine whether TCL compounds and TAL analytes were present in the on-site drainage ditches."

Samples S1, S2, and S3 were selected to identify compounds in drainage ditches at the site. Although the locations may be consistent with the purpose of the sampling, the usefulness of such data is not clear. These sample locations were not representative of waste materials or the potential release of such materials. Rather, they would be more characteristic of the effects of vehicle and machinery traffic associated with landfill operations. Therefore, these samples have no pertinent bearing on the existence of or the potential for a release of an uncontrolled hazardous waste or hazardous substance.

Page 3-4 Section 3.4

"Soil samples S4 through S8 were collected to characterize wastes disposed of in the landfill and to determine whether TCL compounds or TAL analytes had migrated from the fill areas."

The locations chosen for these samples were not representative of the waste materials disposed at this site. They may, however, be representative of cover soils, haul road materials, and other surface road runoff conditions. These samples were collected from surface or near surface materials; they were not of wastes nor were they potentially ever in contact with waste materials.

Page 3-4 Section 3.4

"Surface soil sample S4 was collected from the southeastern corner of the site, near the groundwater drain, to determine whether TCL or TAL analytes had been discharged from the groundwater collection system."

The groundwater collection system referred to in this statement intercepts groundwater upgradient of the facility and routes it beneath the landfill liner through a solid pipe to discharge points located south of the landfill. One of those discharge points is located near the location of sample S4. The water carried in this system is indicative of upgradient water quality. There is no means by which leachate can penetrate the solid pipe. Therefore, any parameters detected in soil S4 would be indicative of upgradient water quality. Fifteen semivolatile parameters were detected in sample S4. Of those fifteen only two were not followed by the compound qualifier "J". The report states that a "J" compound qualifier "indicates an estimated value" which can be interpreted as "compound value may be semiquantitative." These are fluoranthene and pyrene. The following table compares the values of these parameters in the facility's leachate to the values reported in sample S4.

Parameter	Sample S4		Leachate	
	Quantitative Value	Detection Limit	Quantitative Value	Detection Limit
Fluoranthene	1100 ppb	330 ppb	Below Detection Limit	50 ppb
Pyrene	2400 ppb	330 ppb	Below Detection Limit	50 ppb

The results observed in sample S4 cannot be contributed to the landfill facility for the following reasons:

1. The facility leachate does not contain these compounds.

2. The groundwater system underneath the facility is constructed of solid pipe, therefore there is no way for facility leachate to enter the groundwater system.

Page 3-6 Section 3.4

"Surface soil sample S9 and subsurface soil S10 were collected as potential background samples . . ."

When taking the soil samples, the crew took a background sample from a point where no disruption of the soil had occurred. This sample is not upgradient of the other samples and does not account for any of the activity (roads, industry, etc.) upgradient of the landfill. To be representative background samples for the other soil samples collected during this inspection, samples S9 and S10 should have been collected from the drainage ditches along the access roads into the site area.

Page 3-7 Section 3.4

"All monitoring well samples were collected with stainless steel bailers that had been scrubbed with a solution of detergent . . ."

Ecology and Environment did not use their own stainless steel bailers but rather they used dedicated PVC bailers as provided by Land and Lakes Company.

Page 5-1 Section 5.2

"The TCL compounds and TAL analytes detected in on-site soil samples are potentially attributable to the Land and Lakes Company site because the TCL compounds detected in on-site soil samples were all above background levels."

The summaries and accompanying data below refute the above conclusions:

The existence of the identified compounds have not been shown to be related to the landfilled wastes or the landfill. These identified compounds are most likely associated with asphalt road materials and with vehicle and machinery traffic, and pose a contamination potential no greater than that of any other roadway or drainage path in the area surrounding the site.

No volatile organic compound is detected in more than one sample on the same drainage pathway. Samples S7, S3, S2 and S1 along the drainage path on the west side of the site depict no correlation in volatile organic parameters detected. Samples S4, S5, and S6 along the drainage path at the southeast of the facility depict no correlation in volatile organic data. Therefore, there is no spacial relationship to the data that one would expect if contamination were coming from the landfill and being carried through these drainage pathways.

The semivolatile data does have this spacial relationship, but all semi-volatile parameters detected are <u>not</u> found in the facility leachate, are <u>not</u> soluble in

water, and occur in coal tar. It is highly inaccurate to conclude that these parameters can mix with surface water and be carried to other surface water bodies or the groundwater when not one is soluble in water. The fact that all compounds detected are found in coal tar clearly indicates the source of the contamination. Coal tar is found in asphalt used to pave site entrance roads and in asphalt pieces used with other construction materials to construct on-site haul roads.

No pesticide or PCB compound reported was above the method detection limit and without a compound qualifier "j". This data is semi-quantitative and estimated and therefore, suspect.

Of the TAL compounds detected, only 5 compounds have values above those reported in background samples. Of these five parameters, antimony is specifically cited in the report as potentially attributable to the facility. This same compound is reported with the compound qualifiers "n" and "j" and indicates an estimated values outside QC protocols. Antimony is also undetected in the facility leachate.

Volatile Organic Data

Methylene Chloride

In the case of methylene chloride, a TCL compound, the reported values for this parameter in "background" samples S9 and S10 were 130 ppb and 53 ppb respectively. The values of methylene chloride detected in other soil samples were as follows: 9 ppb in S5, 130 ppb in S6, 80 ppb in S7 and 67 ppb in S8. None of these values is greater than the background value of 130 ppb in sample S9.

Chloromethane

This parameter is detected at 26 ppb in sample S7. It is not detected in any other sample. Sample S7 was taken from a drainage ditch that flows from the site entrance road. Samples S3, S2, and S1 were taken from this same ditch line all within 200 feet of each other. If the landfill were the source of this parameter, one would detect this parameter in samples along the same drainage ditch. The fact that it is only detected in one sample along the same drainage channel indicates that this detection may be an anomaly and the conclusion that this parameter is attributable to the landfill is suspect.

Acetone

This parameter is detected in samples S4 located at the southeastern corner of the landfill near the groundwater system drain (which as stated earlier would indicate upgradient water quality) and in sample S7 located along the ditch which drains from the site entrance road. Again, the fact that no other samples along this same ditch detected the presence of this compound makes this detection suspect.

Chloroform

Chloroform was detected at 6 ppb in S3. It was detected in no other sample. The method detection limit used by the contract laboratory was 5 ppb. The fact that this parameter was only detected in one sample at 1 ppb over the method detection limit makes the assumption that the landfill is the source of this parameter suspect.

2-butanone (MEK)

This parameter was detected at 20 ppb in S5 located along the southern boundary of the landfill and in S7 located along the drainage ditch which captures flow from the site's entrance road. The contract laboratory method detection limit for this parameter is 10 ppb. The fact that this parameter is undetected in S6 which is along the same drainage channel as S5 and the fact that sample S3, S2, and S1 along the same drainage channel as S7 report the parameter undetected

makes this data suspect. Once again we see no spacial relation to the detection of this parameter. Furthermore, the levels reported detected are extremely low, only two and three times the method detection limit.

2-hexanone

This parameter is detected at 7 ppb below the contract laboratory method detection limit of 10 ppb in only one sample S5. Clearly this data is suspect since it is followed by the compound qualifier J and is found in no other sample.

Toluene

This parameter is detected below the method detection limit of 5 ppb in sample S1 at 2 ppb. The compound is also detected in the background samples S9 and S10 at 4 ppb and 2 ppb respectively. It is detected at 7 ppb (only 2 ppb above the method detection limit) in sample S6. It is not found in sample S5 which is taken along the same drainage channel. Sample S7 reported this compound at 49 ppb. No other sample taken along the same drainage channel including a sample less than 200 feet way detected the parameter.

Xylenes (total)

This parameter is detected in the background sample S9 at 2 ppb below the method detection limit of 5 ppb.

Semivolatile Organics

Acenaphthylene

This parameter was detected below the method detection limit of 330 ppb in samples S1 and S4. This fact alone makes the data suspect. Additionally, this parameter was not detected in the landfill leachate using a detection limit of 50 ppb.

Acenaphthene

This parameter was detected below the method detection limit of 330 ppb in samples S1 and S2. This fact alone makes the data suspect. Additionally, this parameter was not detected in the landfill leachate using a detection limit of 50 ppb. According to The Merck Index, An Encyclopedia of Chemicals and Drugs, the compound is "obtained from coal tar". Coal tar is found in asphalt. All on-site roads are paved using asphalt or constructed using broken asphalt and other materials to form a road base. In addition, within 900 feet of the facility is an asphalt plant.

The Merck Index also states that the compound is "insoluble in water". Therefore, the conclusions on page 5-2 of the HRS that *"there is a potential for TCL compounds and TAL analytes to migrate from the site to the groundwater"* is highly unlikely.

Fluorene

This parameter was detected below the method detection limit of 330 ppb in samples S1 and S2 This fact alone makes the data suspect. Additionally, this parameter was not detected in the landfill leachate using a detection limit of 50 ppb. According to The Merck Index, An Encyclopedia of Chemicals and Drugs, the compound "occurs in coal tar". It also states that the compound is "freely soluble in glacial acetic acid". There is no mention of water solubility. Again, the conclusion that the landfill is the source of this parameter and the conclusion that the parameter will be carried into groundwater and surface water is highly unlikely.

Phenanthrene

This parameter was detected below the method detection limit of 300 ppb in samples S3, S5 and S8. Samples S4, S6, and S7 reported the parameter above the method detection limit with the compound qualifier "j" which indicates that this value is estimated and semi-quantitative "because of a QC protocol." The parameter was also reported in sample S1 at 900 ppb and sample S2 at 1200 ppb. This parameter was not detected in the landfill leachate using a detection limit of 50 ppb. According to The Merck Index, An Encyclopedia of Chemicals and Drugs, the compound

"occurs in coal tar". It also states that the compound is "practically insoluble in water". Again, the source of the parameters is on-site asphalt roads, not landfill leachate. The fact that the compound is insoluble in water refutes the conclusion that it can contaminate surface or groundwater.

Anthracene

This parameter was detected below the method detection limit of 300 ppb in samples S1, S2, S4, S6, S7 and S8. This fact alone makes the data suspect. According to The Merck Index, An Encyclopedia of Chemicals and Drugs, the compound is "obtained from coal tar". Additionally, this parameter was not detected in the landfill leachate using a detection limit of 50 ppb. The Merck Index also states that the compound is "insoluble in water".

Fluoranthene (1,2 benzacenaphthene)

This parameter was detected below the method detection limit of 300 ppb in sample S5. The parameter is reported in samples S3, S6 and S8 above the method detection limit with the compound qualifier "j" which indicates that the value is semi-quantitative and estimated. The parameter was also detected in sample S1 at 1300 ppb, S2 at 1800 ppb, S4 at 1100 ppb and S7 at 1300 ppb. According to The Merck Index, An Encyclopedia of Chemicals and Drugs, the compound is "obtained from coal tar". This parameter was not detected in the landfill leachate using a detection limit of 50 ppb. The Merck Index also states that the compound is "insoluble in water".

Pyrene

This parameter was detected below the method detection limit of 300 ppb in sample S5. The parameter is reported in samples S3, S6 and S8 above the method detection limit with the compound qualifier "j" which indicates that the value is semi-quantitative and estimated. The parameter was also detected in sample S1 at 1800 ppb, S2 at 1400 ppb, S4 at 2400 ppb and S7 at 1100 ppb. According to The Merck Index, An Encyclopedia of Chemicals and Drugs, the compound "occurs in coal tar". Additionally, this parameter was not detected in the landfill

leachate using a detection limit of 50 ppb. The Merck Index also states that the compound is "insoluble in water". Again, the source of the parameters is on-site asphalt roads or other asphalt sources and not landfill leachate.

Benzo(a)anthracene

This parameter was detected below the method detection limit of 300 ppb in samples S3, S5, S6, and S8. The parameter is reported in samples S2, S4 and S7 above the method detection limit with the compound qualifier "j" which indicates that the value is semi-quantitative and estimated. The parameter was also detected in sample S1 at 750 ppb. Like anthracene, this compound occurs in coal tar and is water insoluble. It is also undetected in the leachate using a method detection limit of 50 ppb.

Chrysene

This parameter was detected below the method detection limit of 300 ppb in sample S3, S5, S6, and S8. The parameter is reported in samples S2, S4 and S7 above the method detection limit with the compound qualifier "j" which indicates that the value is semi-quantitative and estimated. The parameter was also detected in sample S1 at 1800 ppb, S2 at 1400 ppb, S4 at 2400 ppb and S7 at 1100 ppb. According to The Merck Index, An Encyclopedia of Chemicals and Drugs, the compound "occurs in coal tar". Additionally, this parameter was not detected in the landfill leachate using a detection limit of 50 ppb. The Merck Index also states that the compound is "insoluble in water". Again, the source of the parameter source is not landfill leachate.

Benzo(b)fluoranthene

This parameter was detected below the method detection limit of 300 ppb in samples S3, S5, S6, and S8. The parameter is reported in samples S2, S4 and S7 above the method detection limit with the compound qualifier "j" which indicates that the value is semi-quantitative and estimated. The parameter was also detected in sample S1 at 820 ppb. Like fluoranthene the compound occurs in coal tar and is water insoluble. It is also undetected in the leachate using a method detection limit of 50 ppb.

Benzo(k)fluoranthene

This parameter was detected below the method detection limit of 330 ppb in samples S1 and S4. This fact alone makes the data suspect. Additionally, this parameter was not detected in the landfill leachate using a detection limit of 50 ppb. Like fluoranthene the compound occurs in coal tar and is water insoluble.

Benzo(a)pyrene

This parameter was detected below the method detection limit of 330 ppb in samples S3, S5, S6, and S8. The parameter is reported in samples S1,S2, S4 and S7 above the method detection limit with the compound qualifier "j" which indicates that the value is semi-quantitative and estimated. Additionally, this parameter was not detected in the landfill leachate using a detection limit of 50 ppb. According to Merck Index, the parameter "occurs in coal tar" and is "insoluble in water".

Indeno(1,2,3-cd)pyrene

This parameter was detected at or below the method detection limit of 330 ppb in samples S1, S2, S3, S5, S6, and S8. The parameter is reported in samples S2 and S7 above the method detection limit with the compound qualifier "j" which indicates that the value is semi-quantitative and estimated "because of a QC protocol." Additionally, this parameter was not detected in the landfill leachate using a detection limit of 50 ppb. Like pyrene the compound occurs in coal tar and is water insoluble.

Dibenzo(a,h,)anthracene

This parameter was detected below the method detection limit of 330 ppb in samples S1 and S4. This fact alone makes the data suspect. Additionally, this parameter was not detected in the landfill leachate using a detection limit of 50 ppb. Like anthracene, the compound occurs in coal tar and is insoluble in water.

Benzo(g,h,i)perylene

This parameter was detected at or below the method detection limit of 330 ppb in samples S1, S2, S3, S5, S6, S7 and S8. The parameter is reported in samples S4 above the method detection limit with the compound qualifier "j" which indicates that the value is semi-quantitative and estimated "because of a QC protocol". Additionally, this parameter was not detected in the landfill leachate using a detection limit of 50 ppb. Like pyrene the compound occurs in coal tar and is water insoluble.

Pesticides and PCB's

All compounds in this category were detected below the method detection limits with the exception of 4-4'-DDT in samples S1 and S2. Both these compounds were detected above method detection limits with the compound qualifier "j" which is semi-quantitative and reported "above CRDL and is an estimated value because of a QC protocol."

TAL Compounds

Of the TAL compounds analyzed, only sodium, manganese, calcium, cadmium, and antimony exceeded levels found in background samples. Only antimony and cadmium are heavy metals that are not usually naturally occurring. In the rest of the samples, background exceeded the levels found in the other samples. The following table highlights the highest value detected in on-site samples for antimony and cadmium and compares this value to the parameter's value in the facility's leachate.

Parameter	Sample Number	Reported Value	Detection Limit	Background	Leachate	Detect. Limit
Antimony	S1	16.40NJ[1] ppm	2.4 ppm	not detected	Below Detection Limit	.5 ppm
Cadmium	S4	1.2 B ppm	1 ppm	1.1 B ppm	0.068 ppm	.005 ppm

This data indicates that values reported for antimony that are directly cited in the report on a number of occasions have spike recoveries outside QC protocols and are estimated values. This parameter is also not detected in the facility leachate using a method detection limit of 0.5 mg/l. Cadmium is reported at .2 mg/kg above its method detection limit and only .1 mg/kg above background samples.

Page 5-2 Section 5.2

"There is a potential for TCL compounds and TAL analytes to migrate from the site to groundwater based on the geology in the area of the site."

The report does not discuss the groundwater chemistry involved in how these contaminants will be carried in the groundwater. It fails to discuss how this will occur when most of the parameters detected are insoluble in water. Water infiltration through the soil, the soils attenuation affect on contaminants and the means by which contaminants are carried in the water are very complex issues which must be thoroughly investigated and addressed before a conclusion (such as the one above) can be reached. There is no direct relationship between parameters detected in the soil and groundwater contamination.

[1] N means "Spike recoveries outside QC protocols, which indicates a possible matrix problem. Data may be biased high or low." J means "Value is above CRDL and is estimated value because of QC protocol."

The groundwater beneath the Land and Lakes Willow Ranch site is not contaminated. The reworked clay liner with a minimum thickness of 5 feet and groundwater underdrain system have performed as designed and constructed to provide for the absence of groundwater impacts.

Page 5-2 Section 5.2

"Its geology is slightly different from that of the surrounding hills . . . and the bedrock is exposed in some places." (see Appendix E) (William 1971)

A limestone quarry approximately 110 feet deep and approximately 100 acres in size is directly south of the site. This quarry has a significant impact on the groundwater flows in the area and these impacts should have been noted in the report.

Page 5-3 Section 5.2

"The liner of the landfill is comprised of only 5 feet of clay and its integrity is not known. No further information about the construction of the liner was made available to FIT by the site representatives."

Please refer to previous comments.

Page 5-3 Section 5.2

"The population potentially affected by the migration of TCL compounds and TAL analytes from the site to groundwater in the vicinity of the site includes the approximately 62,666 persons who are served by private and municipal wells within a 3-mile radius of the site."

Groundwater flow direction at the landfill site is to the south-southeast as stated in the report. The proximity of Vulcan's quarry and its tremendous effect on

groundwater flow direction around the quarry would prohibit any contamination of the drinking water for the cities of Lemont, Bolingbrook, Romeoville, Citizens' Utilities users, and of any other private well in the area.

The existence of TCL compounds and TAL analytes on the site have not been shown by Ecology & Environment, Inc. to be related to landfill wastes and, in fact, are not related to landfill wastes. The identified TCL compounds and TAL compounds are most likely associated with roads constructed of bituminous asphalt and vehicular traffic, and they pose no greater a threat than from any other roadway or drainage path.

The methodology of using the 3-mile radius and determining population centers within the 3-mile radius in terms of the HRS model is applicable to this site; but to realistically evaluate the population potentially affected, groundwater flow directions should be considered. Based on groundwater flow directions and the draw-down effect of the quarry, not one person will be affected by the potential migration of TCL compounds and TAL analytes.

Page 5-4 Section 5.3

"Between the Land and Lakes Company site and the Des Plaines River are Rock Lake and a wetlands area."

Please refer to Page 3-2, Section 3.3 of the report describing a gravel pit (actually a 100+ acre, 110-foot deep limestone quarry) on the south. The Vulcan limestone quarry has a depth of 110 feet which impacts the groundwater flows in the area of the quarry and those impacts should probably be discussed in the Ecology & Environment, Inc. report. Ecology & Environment, Inc. would probably conclude that in the event of a leak, the water would be drawn to the quarry and that groundwater contamination would not occur.

Page 5-4 Section 5.3

"There is a potential for TCL compounds and TAL analytes detected in on-site surface soil samples to migrate from the site to the Des Plaines River."

The TCL compounds and TAL analytes have not been shown to be related to the landfilled wastes nor, in fact, are they related to the landfilled wastes.

These identified compounds are most likely associated with vehicle and machinery traffic, and pose a contamination potential for the Des Plaines River no greater than any other roadway or drainage path in the area surrounding the site.

Page 5--5 Section 5.3

"The effectiveness of the leachate collection system is not known."

As discussed previously, there are no requirements for a leachate collection system at this site, nor has one been installed.

Page 5-5 Section 5.3

"The site slopes steeply downward toward the Des Plaines River (USGS 1962)."

This sentence might be interpreted to mean that the site is directly adjacent to the river and it slopes downward right to the edge of the river. The site is approximately 1,200 feet from the river and it slopes downward toward the river at its permitted 3:1 slope.

Page 5--5 Section 5.3

"The Des Plaines River is used for recreational purposes."

The term "recreational purposes" conjures up the notion of swimming, boating, waterskiing, beaches, fishing, etc. The only actual recreational activities carried out in this section of the Des Plaines River consists of some fishing and hunting.

To more accurately describe the surrounding activities, the following should probably have been noted in the report:

1) The Chicago Sanitary and Ship Canal runs parallel to the Des Plaines River.

2) The Chicago Sanitary and Ship Canal carries heavy, barge traffic.

3) The Union Oil Refinery is directly across the Des Plaines River south of the site.

4) Other oil refineries are adjacent to the Union Oil Refinery.

5) Commonwealth Edison's Will County Plant and coal handling facilities are approximately two miles south of the site.

6) Heavy industry, bulk handling facilities and many barge terminals line the Ship Canal.

Page 5--6 Section 5.6

"Site access is not adequately restricted. A low plastic fence only partially surrounds the site."

This erroneous conclusion is drawn from further incomplete investigations. Please refer to previous comments.

Page 5--6 Section 5.6

"The population within a 1-mile radius of the site potentially affected through direct contact with TCL compounds and TAL analytes at the site is 203 persons."

The 1 mile radius is necessary to evaluate the site under the HRS scoring system but it is highly unlikely that any of the 203 persons would visit this site and come into direct contact with soils on the site. The identified compounds are most likely associated with road construction and vehicle and machinery traffic and pose a contamination potential no greater than that of any other roadway or drainage path.

Appendix B Site Inspection Report, Part 2, Section II

Most information asked on this form is available from the IEPA or at the offices of Land and Lakes Company.

Appendix B Site Inspection Report, Part 3, Section I

Groundwater contamination would potentially affect no one, since the groundwater under this landfill is drawn to Vulcan's 110-foot deep quarry. All conclusions drawn by Ecology & Environment, Inc. are incorrect on this form because their preceding discussions in Sections 1 through 5 relating to the physical setting are contradictory and inconsistent.

Appendix B Site Inspection Report, Part 5, Section VI

Where is the information to substantiate the selection of permeabilities of the unsaturated zone and of the bedrock?

Appendix C Page 21 of 21 - Second Photo

The vertical concrete pipe is not an access hatch to the leachate collection system, rather it is a manhole to monitor the level of the leachate. The leachate levels have been reported to the IEPA on a semi-annual basis and the leachate levels have been very low (6" or less).